

CONSTRUCTION CARPENTRY TECHNOLOGY

Program of Studies
2014-2015



CARPENTRY

Course Title	Post-Secondary Connection	Valid Course Code	Recommended Grade Level							Recommended Credit
			6	7	8	9	10	11	12	
Cabinet Construction & Installation	CAR240	480732							X	.5
Cabinet Construction & Install Lab	CAR241	480734							X	.5
Ceiling & Roof Framing	CAR196	460213						X	X	.5
Ceiling & Rood Framing Lab	CAR197	460225						X	X	.5
Construction Forms	CAR150	460218						X	X	.5
Construction Forms Lab	CAR151	460227						X	X	.5
Construction Prints	BRX220	460217				X	X			.5
Co-op Education	CAR199	460242							X	1
Exterior & Interior Finishing	CAR200	460219						X	X	.5
Exterior & Interior Finishing Lab	CAR201	460228						X	X	.5
Floor & Wall Framing	CAR190	460212						X	X	.5
Floor & Wall Framing Lab	CAR191	460224						X	X	.5
Fundamentals of Math	MTH 100	470818				X	X	X	X	.5
Industrial Safety	ISX100	460301				X	X	X		.5
Intro to Construction Carpentry	CAR126	460201				X	X	X		.5
Intro to Construction Carpentry Lab	CAR127	460202				X	X	X		.5
Internship	ACR198	460883							X	1
Site Layout & Foundations	CAR140	460214						X	X	.5

Site Layout & Foundations Lab	CAR141	460226						X	X	.5
Workplace Principles		060191					X	X	X	.5
Digital Literacy	DLC 100	060112				X	X	X		.5

CONSTRUCTION CARPENTRY TECHNOLOGY

Program Description:

The Construction Technology programs will prepare students for work in new construction, remodel, and energy auditing industries. Course offerings include everything from entry level trades courses, all the way to national certification. Students will train at the career centers, high schools and at real jobsites. Current and traditional building practices are included, while updated and advanced framing techniques, energy efficiency, health and safety, and sustainability methods are emphasized.

Construction Pre-Apprenticeship courses are included that focus on new construction, carpentry, and other building trades. Students learn about the tools and techniques used in the construction industries. The students may gain skills in Air Conditioning Technology, Building and Apartment Maintenance, Carpentry, Electrical Technology, Masonry and Plumbing. They are also introduced to green building methods and materials. The Building Performance and Energy Assessment courses shift that focus to analyzing existing homes.

Weatherization, Building Performance and Energy Assessment industries are helping families reduce their energy burden, while maintaining comfort and safety. Our students will learn the national standard and protocols for energy auditing, combustion appliance safety, and energy modeling. Successful students are prepared to take the national certification exams for building analysts and energy auditors.

Course offerings are intended to promote career ladders for those just entering the industry, as well as industry professionals looking to stay current. There are multiple certificates and degree options and inter-related disciplines at the Career Centers having articulation agreements with various post-secondary institutions.

MODEL COURSE SEQUENCE

KDE Career Pathways Construction Carpentry Technology 2014-2015		
Career Pathway	Core Courses	Elective Courses
<p>Carpenter Helper CIP: 46.0201.00</p> <p><u>Tests for Certification:</u></p> <ul style="list-style-type: none"> • KOSSA – Construction Test • NCCER-Core Curriculum • NCCER-Carpentry Level 1 	<ul style="list-style-type: none"> • Intro to Construction Carpentry/Lab 460201/202 • Floor and Wall Framing/Lab 460212/224 • Ceiling and Roof Framing/Lab 460213/225 • Construction Prints 460217 • Industrial Safety 460301 	<ul style="list-style-type: none"> • Exterior and Interior Finishing/Lab 460219/228 • Site Layout/Lab 460226 • Work Place Principles 060191 • Fundamentals of Math 470818 • Construction Forms/Lab 460218/227 • Cabinet Construction & Installation/Lab 480732/734 • CO-OP 460242 • Digital Literacy 060112

<p>Rough Carpenter Helper CIP: 46.0201.01</p> <p><u>Tests for Certification:</u></p> <ul style="list-style-type: none"> • KOSSA – Construction Test • NCCER-Core Curriculum • NCCER-Carpentry Level 1 	<ul style="list-style-type: none"> • Intro to Construction Carpentry/Lab 460201/202 • Floor and Wall Framing/Lab 460212/214 • Ceiling and Roof Framing/Lab 460213/225 • Exterior and Interior Finishing/Lab 460219/228 	<ul style="list-style-type: none"> • Site Layout/Lab 460214/226 • Work Place Principles 060191 • Fundamentals of Math 470818 • Construction Forms/Lab 460218/227 • Cabinet Construction and Installation/Lab 480732/734 • Construction Prints 460217 • Industrial Safety 460301 • CO-OP 460242 • Digital Literacy 480101
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<p>Construction Form Helper CIP: 46.0201.02</p> <p><u>Tests for Certification:</u></p> <ul style="list-style-type: none">• KOSSA – Construction Test• NCCER-Core Curriculum• NCCER-Carpentry Level 1	<ul style="list-style-type: none">• Intro to Construction Carpentry/Lab 460201/202• Floor and Wall Framing/Lab 460212/214• Site Layout/Lab 460214/226• Construction Forms/Lab 460218/227	<ul style="list-style-type: none">• Work Place Principles 060191• Fundamentals of Math 470818• Cabinet Construction and Installation/Lab 480732/734• Construction Prints 460217• Industrial Safety 460301• Exterior and Interior Finishing/Lab 460219/228• Ceiling and Roof Framing/Lab 460213/225• CO-OP 460242• Digital Literacy 480101
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<p>Cabinet Builder and Installer Helper CIP: 46.0201.03</p> <p><u>Tests for Certification:</u></p> <ul style="list-style-type: none"> • KOSSA – Construction Test • NCCER-Core Curriculum • NCCER-Carpentry Level 1 	<ul style="list-style-type: none"> • Intro to Construction Carpentry/Lab 460201/202 • Floor and Wall Framing/Lab 460212/214 • Exterior and Interior Finishing/Lab 460219/228 • Cabinet Construction and Installation/Lab 480732/734 	<ul style="list-style-type: none"> • Work Place Principles 060191 • Fundamentals of Math 470818 • Construction Prints 460217 • Industrial Safety 460301 • Ceiling and Roof Framing/Lab 460213/225 • Site Layout/Lab 460214/226 • Construction Forms/Lab 460218/227 • CO-OP 460242 • Digital Literacy 480101
<p>Finish Carpenters Helper CIP: 46.0201.04</p> <p><u>Tests for Certification:</u></p> <ul style="list-style-type: none"> • KOSSA – Construction Test • NCCER-Core Curriculum • NCCER-Carpentry Level 1 	<ul style="list-style-type: none"> • Intro to Construction Carpentry/Lab 460201/202 • Construction Prints 460217 • Industrial Safety 460301 • Exterior and Interior Finishing/Lab 460219/228 • Cabinet Construction and Installation/Lab 480732/734 	<ul style="list-style-type: none"> • Ceiling and Roof Framing/Lab 460213/225 • Site Layout/Lab 460214/226 • Construction Forms/Lab 460218/227 • Work Place Principles 060191 • Fundamentals of Math 470818 • Floor and Wall Framing/Lab 460212/224 • CO-OP 460242

**Carpenter Apprentice Helper
CIP: 46.0201.05**


Tests for Certification:

- **KOSSA –
Construction Test**
- **NCCER-Core
Curriculum**
- **NCCER-Carpentry
Level 1**

- **Intro to Construction
Carpentry/Lab
460201/202**
- **Floor and Wall
Framing/Lab 460212/224**
- **Work Place Principles
060191**
- **Fundamentals of Math
470818**
- **Construction Prints
460217**
- **Industrial Safety 460301**

- **Exterior and Interior
Finishing/Lab
460219/228**
- **Site Layout/Lab
460214/226**
- **Construction
Forms/Lab 460218/227**
- **Cabinet Construction
and Installation/Lab
480732/734**
- **Ceiling and Roof
Framing/Lab
460213/225**
- **CO-OP 460242**
- **Internship 460883**

SAMPLE CAREER PATHWAY/CARPENTRY

KENTUCKY CAREER PATHWAY/PROGRAM OF STUDY TEMPLATE									
COLLEGE/UNIVERSITY:		Eastern Kentucky University			CLUSTER:		Construction		
HIGH SCHOOL (S):		Anderson County High School			PATHWAY:		Construction Management		
		Harrodsburg ATC			PROGRAM:		Construction Carpentry		
GRADE	ENGLISH	MATH	SCIENCE	SOCIAL STUDIES	REQUIRED COURSES RECOMMENDED ELECTIVE COURSES OTHER ELECTIVE COURSES CAREER AND TECHNICAL EDUCATION COURSES			CREDENTIAL CERTIFICATE DIPLOMA DEGREE	SAMPLE OCCUPATIONS
SECONDARY	English I	Algebra I	Earth and Space Science	Social Studies	Life Skills/Keyboarding	Health & PE	Basic Blueprint Reading ♦		
	English II	Geometry	Biology	World History	Intro to Carpentry ♦	Site Layout & Foundations ♦	Blueprint Reading for Construction Fundamentals of Math ♦	*Basic Carpenter - Foundations A Career Major	
	English III	Algebra II	Chemistry or Physical Science	U.S. History	History and Appreciation of Visual and Performing Arts	Construction Forms ♦	Workplace Principles Industrial Safety ♦	*Basic Carpenter - Forms A	
	English IV	4th Math	Physics	Social Studies	Floor & Wall Framing ♦	Ceiling & Roof Framing ♦	Special Topics (NCCER Industry Accreditation)	*Basic Carpenter - Floor & Wall A *Basic Carpenter - Framing A *Carpenter Helper A *Residential Roofer A *Construction Forms Helper A *Residential Site Layout Assistant A *Rough Carpenter A HS Diploma	Entry Level Carpenter
Take ACT - Apply for admission to Eastern Kentucky University.								*Onet Certificates	
POSTSECONDARY	Writing	Math	Science	Computer Applications	Materials and Methods of Construction •	Intro to Construction •	Estimating •		
	Communications	Math	Humanities	Social Interaction	Plane Surveying •	Managerial Reports •	Soils and Foundations •		
	Communications	Humanities	Psychology	Economics	Construction Contracts •	Estimating II •	Occupational Safety •		
	Arts and Humanities	Math	Science		Structural Systems •	Strength of Materials •	Surveying •	Bachelor's Degree	Construction Manager
 CCTI <small>COLLEGE AND CAREER TRANSITIONS INITIATIVE</small>					Required Courses Recommended Elective Courses Other Elective Courses Career and Technical Education Courses Credit-Based Transition Programs (e.g. Dual/Concurrent Enrollment, Articulated Courses, 2+2+2) (♦ = High School to Comm. College) (• = Com. College to 4-Yr Institution) (• = Opportunity to test out) Mandatory Assessments, Advising, and Additional Preparation				
Funded by the U. S. Department of Education (V051020000) Revised Jan. 2005 October, 2006-CTE/Kentucky					Note: Categories of courses (e.g. Required, Recommended Electives, other Electives and career and Technical Education) apply to both secondary and postsecondary levels.				

**Workplace Principles
060191**

Course Description

Workplace Principles examine the changing workforce and the skills needed to adapt to constantly changing demands and expectations. The course includes, but is not limited to, problem solving, teamwork, time management, and self-management skills. Job-seeking and job-retention skills are taught through the development of resumes and job search materials. Maximum benefit is received if this course is taken in the latter part of the student's course work.

Prerequisites: None

STUDENTS WILL:

1	Describe and apply the problem-solving processes independently and in groups	
2	Describe the importance of teamwork and apply teamwork skills	
3	Identify barriers to full team participation (sexual harassment, diversity, Americans with Disabilities Act, inhibiting behaviors)	
4	Apply conflict resolution skills in team situations (i.e., workplace violence)	
5	Describe the importance of time and self-management in the workplace	
6	Describe personal performance skills (i.e., appropriate dress, business protocol, personality traits, customer relations skills, and professional behavior)	
7	Describe the steps to take advantage of transition opportunities (i.e., lifestyle change, employment change)	
8	Develop an employment portfolio including a cover letter, resume, and reference page	
9	Identify sources for job leads and employer contacts	
10	Complete application forms	

11	Prepare and practice for job interviews	
12	Practice job follow-up strategies (job acceptance and job rejection)	
13	Review pre-employment tests	
14	Identify policies and procedures for a drug-free workplace, workers' compensation, Family Medical Leave Act, grievance policy, unemployment compensation, and business ethics	
15	Identify ergonomics and understand why ergonomics is important from a health point of view.	
16	Demonstrate accountability of and the safe and responsible use of company resources, office equipment, machines, etc.	
17	Apply Internet etiquette and safety	
18	Identify safety rules applicable to this course and demonstrate appropriate observance of said rules, including but not limited to, trip hazards, electrical cords and outlets, evacuation procedures for emergency situations (including fire, tornado, bomb threat, earthquake, etc.), lockdown procedures for emergency situations, location and contents of first aid kit, MSDS sheets, etc.	
Connections: *Common Core State Standards *KOSSA *Common Core Technical Standards *New Generation Science Standards CTSO's – Skills USA		

Digital Literacy

480101

Course Description

The impact of computers on society, and ethical issues are presented. Students use microcomputer and application software, including word processing, database, spreadsheets, presentation software, and the Internet, to prepare elementary documents, reports, and electronic presentations.

Content/Process

STUDENTS WILL:

1	Use a word processing program to create, save, print, modify, spell-check, and grammar-check a simple document
2	Use a word processing program to enhance the appearance of a simple document by using centered, right-justified, boldfaced, underlined, and italicized text
3	Use a word processing program to change the default margins and line spacing
4	Use a word processing program to create a document with headers, footers, and footnotes
5	Use an electronic spreadsheet to create, save, print, modify, and obtain graphs from a simple spreadsheet.
6	Use an electronic spreadsheet to perform basic mathematical operations including, but not limited to addition, subtraction, multiplication, and division
7	Use an electronic spreadsheet to calculate averages and percent's
8	Use an electronic spreadsheet program to enhance the appearance of a spreadsheet by changing fonts, foreground and background colors; and centering text across columns

9	Use a database management program to create, maintain, and print reports from a simple relational database
10	Use a database management program to customize the user interface by creating and maintaining forms and reports
11	Use a database management program to query tables using basic query operations such as "and", "or", "not", etc.
12	Print in landscape and portrait orientations
13	Use the component of the operating system that helps the user manipulate files and folders to copy, move, rename, and delete files; and to create, copy, move, rename, and delete folders
14	Use a World Wide Web browser to navigate hypertext documents and to download files
15	Use Internet search engines and understand their advantages and disadvantages
16	Use an electronic mail program to send and receive electronic mail
17	Discriminate between ethical and unethical uses of computers and information including e-mail and internet etiquette
18	Demonstrate a basic understanding of issues regarding software copyright, software licensing, and software copying
19	Demonstrate an awareness of computer viruses and a basic understanding of ways to protect a computer from viruses
20	Demonstrate a basic understanding of the impact of computers on society
21	Use and understand basic computer terminology
22	Identify types of computers, how they process information and how individual computers interact with other computing systems and devices
23	Identify the function of computer hardware components

24	Identify the factors that go into an individual or organizational decision on how to purchase computer equipment
25	Identify how to maintain computer equipment and solve common problems relating to computer hardware
26	Identify how software and hardware work together to perform computing tasks and how software is developed and upgraded
27	Identify different types of software, general concepts relating to software categories, and the tasks to which each type of software is most suited or not suited
28	Identify what an operating system is and how it works, and solve common problems related to operating systems
29	Manipulate and control the Windows desktop, files, and disks
30	Identify how to change system settings, install and remove software
31	Be able to start and exit a Windows application and utilize sources of online help
32	Identify common on-screen elements of Windows applications, change application settings and manage files within an application
33	Describe and implement the protocol of utilizing presentation software.
34	Use a presentation program to create, save, modify, spell check, and grammar-check a simple presentation.
35	Deleted Task
36	Use a presentation program to enhance the appearance of the slide designs, background colors, and layout.
37	Utilize the print features in a presentation to include handouts, speaker's notes, and black and white.

Connections:

***Common Core State Standards**

***KOSSA**

***Common Core Technical Standards**

***New Generation Science Standards**

CTSO's – Skills USA

Cabinet Construction and Installation

Class 480732

Lab 480734

Course Description

Students will layout and plan the construction of base and wall cabinets. They will construct, sand, prepare wood surfaces for finishing, install cabinets and special units. Lecture

Content/Process

Students will:

- 1 Study design layout of the different types of kitchen layouts**
- 2 Identify standardized cabinet and appliance dimensions**
- 3 Produce a kitchen cabinet layout**
- 4 Identify components of the factory built cabinets**
- 5 Lay out custom built cabinets**
- 6 Construct cabinet frames**
- 7 Construct cabinet boxes**
- 8 Construct and install drawers**
- 9 Construct and install cabinet doors**
- 10 Install shelf supporting devices**
- 11 Install cabinets**
- 12 Sand, prepare and finish wood surfaces**
- 13 Install plastic laminates**
- 14 Install counter tops**
- 15 Install cabinet hardware**

16 Construct and install special units such as bookcases, medicine cabinets and window seats

Connections:

***Common Core State Standards**

***KOSSA**

***Common Core Technical Standards**

***New Generation Science Standards**

***Post-Secondary: KCTCS DCL 100**

CTSO's – Skills USA

Ceiling and Roof Framing

Class 460213

Lab 460225

Course Description

This course covers roof types and combinations of roof types used in the construction industry. The emphasis of this course is on layout, cutting and installing ceiling joists, rafters, roof decking, and roof coverings.

Content/Process

Students will:

- 1 Plan a roof system.**
- 2 Calculate, layout, cut and erect rafters to build a gable roof.**
- 3 Calculate, layout, cut and erect rafters to build a gambrel roof.**
- 4 Calculate, layout, cut and erect rafters to build a hip roof and/or other type of roofs.**
- 5 Install purlins, collar ties, and knee walls.**
- 6 Cut and install ceiling joists.**
- 7 Frame roof openings and roof saddles.**
- 8 Install roof sheathing.**
- 9 Install roof felt.**
- 10 Install roof flashing and drip edge.**
- 11 Install various types of shingles.**
- 12 Frame dormers.**
- 13 Install various types of attic vents.**
- 14 Cut and install tail and jack rafters.**

- 15 Install prefabricated trusses.**
- 16 Cut, construct, and install trusses.**
- 17 Install metal roofing.**

Connections:

***Common Core State Standards**

***KOSSA**

***Common Core Technical Standards**

***New Generation Science Standards**

***Post-Secondary: KCTCS CAR 196**

CTSO's – Skills USA

Introduction to Construction Carpentry

Class 460201

Lab 460202

	Course Description This course is the introduction to the construction carpentry industry. The class will emphasize safe and proper methods of operating hand tools, portable power tools, and stationary power tools in the construction industry	
	Content/Process	
1	Identify the proper use of personal protection equipment and general job safety.	
2	Identify and use various types of building materials.	
3	Identify and use various types of fasteners, anchors, and adhesives used in the construction industry.	
4	Identify the actual and nominal sizes of lumber.	
5	Perform mathematics functions as related to tasks being performed.	
6	Demonstrate the safe and proper use of the following types of hand tools: fastening devices, layout and measuring devices, leveling devices, edge cutting devices, etc.	
7	Demonstrate the safe and proper use of the following types of portable power tools: various saws, surfacing and shaping tools, drills, pneumatic tools, etc.	
8	Demonstrate the safe and proper use of the following stationary power tools: various saws, drill press, surface and shaping tools, drills, pneumatic tools, etc.	

9	Build a project using tools of the trade: sawhorse, shop bench, tool box, picnic table.	
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Connections:

- *Common Core State Standards
- *KOSSA
- *Common Core Technical Standards
- *New Generation Science Standards
- *Post-Secondary: KCTCS CAR 196
- CTSO's – Skills USA

Industrial Safety

460301

	Course Description This course provides practical training in industrial safety. The students are taught to observe general safety rules and regulations, to apply work site and shop safety rules, and to apply OSHA regulations. Students are expected to obtain certification in first aid and cardiopulmonary resuscitation.	
	Content/Process	
1	Apply work site and lab safety procedures	
2	Apply personal safety rules and procedures	
3	Apply fire prevention rules and procedures	
4	Obtain first aid certification	
5	Obtain CPR certification	
6	Demonstrate hazardous communications procedures	
7	Describe and demonstrate universal precautions procedures	

Connections:

***Common Core State Standards**

***KOSSA**

***Common Core Technical Standards**

***New Generation Science Standards**

***Post-Secondary: KCTCS ISX 100**

CTSO's – Skills USA

Exterior and Interior Finish

Class 460219

Lab 460228

	Course Description: This course presents basic concepts of building trim, gypsum wallboard, paneling, base, ceiling and wall molding with instruction on acoustical ceilings and insulation, wood floors, tile, inlaid adhesive and tools of the flooring trade. This course will continue to refine the techniques and skills taught in the previous carpentry courses. In this course, cost control, speed, and precision are emphasized. In addition, students will perfect the skills associated with the exterior finishing of a house	
	Content/Process	
1	Cut and install exterior doors and trim.	
2	Install windows, hardware and trim.	
3	Estimate and install insulation.	
4	Install various types of exterior siding.	
5	Estimate, install, and finish interior drywall.	
6	Estimate and install paneling and molding.	
7	Install doors, hardware, and trim.	
8	Erect scaffolds.	
9	Estimate, cut and install floor, wall and ceiling molding.	
10	Build and install cornices using different types of materials.	

11	Install various types of floor covering.	
12	Install soffit vents.	
13	Install gable vents.	
14	Layout and construct cabinets (optional task).	
15	Layout and install cabinets (optional task).	

Connections:

***Common Core State Standards**

***KOSSA**

***Common Core Technical Standards**

***New Generation Science Standards**

***Post-Secondary: KCTCS CAR 200**

CTSO's – Skills USA

Floor and Wall Framing

Class 460212

Lab 460224

	Course Description: The student will practice floor framing, layout, and construction of floor frames. Cutting and installing floor and wall framing members according to plans and specifications will also be practiced.	
	Content/Process	
1	Install sill plates to foundation walls.	
2	Install Lally posts.	
3	Install steel beams.	
4	Install wood beams.	
5	Frame built-up girders.	
6	Install floor joists.	
7	Frame floor openings.	
8	Lay subfloors and underlayment.	
9	Calculate layout, cut, and install stairs.	
10	Construct, layout, and install exterior walls.	
11	Frame wall openings.	
12	Layout, construct, install, and frame partition walls using wood and steel.	
13	Install exterior wall sheathing.	
14	Frame special partitions (i.e. late blueprint changes)	

15	Install house wrap	
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Connections:

***Common Core State Standards**

***KOSSA**

***Common Core Technical Standards**

***New Generation Science Standards**

***Post-Secondary: KCTCS CAR 190**

CTSO's – Skills USA

Cooperative Education I

460242

	Course Description Co-op provides supervised on-the-job work experience related to the student's educational objectives. Students participating in the Co-op Education program receive compensation for their work.
	Content/Process
1	Gain career awareness and the opportunity to test career choice(s)
2	Receive work experience related to career interests prior to graduation
3	Integrate classroom studies with work experience
4	Receive exposure to facilities and equipment unavailable in a classroom setting.
5	Increase employability potential after graduation
6	Earn funds to help finance education expenses
Connections: *Common Core State Standards *KOSSA *Common Core Technical Standards *New Generation Science Standards *Post-Secondary: KCTCS CAR 150 CTSO's – Skills USA	

Construction Forms

460218

460227

	Course Description: This course will introduce the student to heavy and commercial construction. The student will receive information about rigging, wall forms, vertical piers and columns, grade curb forms, horizontal beam forms, above-grade slab systems, fireproof encasement forms, stair forms, bridge and bridge deck forms
	Content/Process
1	Identify form systems and components used to construct wall forms.
2	Identify form systems and components used to construct vertical piers and columns.
3	Describe the construction of horizontal beam forms.
4	Explain the construction of above grade forms.
5	Describe the construction of fire-proofing encasement forms.
6	Layout and estimate materials for concrete stair forms.
7	Explain the basic properties of concrete as a building material.
8	Identify and understand safe rigging practices.
9	Explain the use of hand signals used as communication on a construction site.

Connections:

***Common Core State Standards**

***KOSSA**

***Common Core Technical Standards**

***New Generation Science Standards**

***Post-Secondary: KCTCS CAR 150**

CTSO's – Skills USA

Fundamentals of Mathematics
470818

	Course Description This course concentrates on basic math and is designed to assist the student in mastering and applying math skills in the areas of whole numbers, fractions, decimals, percentages, basic measurements, simple equations, ratio and proportions, computed measurements, tables and graphs, and use of the hand-held calculator.	
	Content/Process	
1	Without the use of a calculator, perform the fundamental arithmetic operations on whole numbers with accuracy and speed	
2	Without the use of a calculator, perform the fundamental arithmetic operations on fractions with accuracy and speed	
3	Without the use of a calculator, perform the fundamental arithmetic operations on decimals with accuracy and speed	
4	Without the use of a calculator, perform the fundamental arithmetic operations on percentages with accuracy and speed	
5	Perform basic processes in problems dealing with English and metric units of measure	
6	Perform conversions interchanging the English and metric systems of measure with accuracy	
7	Utilize ratio/proportions	
8	Apply basic formulas	
9	Calculate area, volume, and perimeter of basic shapes to include squares, rectangles, and circles	

10	Read and interpret tables and graphs	
11	Use scientific calculators	
Connections: *Common Core State Standards *KOSSA *Common Core Technical Standards *New Generation Science Standards *Post-Secondary: KCTCS CAR 126 CTSO's – Skills USA		

Construction Prints

460217

	Course Description This course will provide a series of lectures, demonstrations, and practice exercises in the study of symbols, views, sections, details, and material lists found on architectural working drawings, building materials and specifications lists, and construction dimensioning systems and charts/schedules.	
	Content/Process	
1	Demonstrate view projection techniques as applicable to the construction trades	
2	Identify line types used in combinations	
3	Identify standards listings on construction working drawings and details	
4	Interpret various symbols and uses	
5	List procedural construction requirements from notations on working drawings and details	
6	Specify duty-specific uses of contour and grade notes	
7	Determine overall measurement (lengths, heights, and depths)	
8	Describe various materials' usage in sectioned drawings	
9	Describe assembly techniques used in various sectioned drawings	
10	Complete various sectioned views	
11	Define various terms	
12	Identify various prefabricated materials from vendor catalogs	

13	Display an understanding of financing procedures	
14	Construct a materials control chart for a construction project	
15	Display an understanding of door and window schedules	
16	Determine structural calculations	
17	Identify plumbing, air conditioning, electrical, concrete construction, and building procedures and techniques from various related details and drawings	
18	Compile a duty-specific hardware list for a construction project	
19	List duty-specific fire prevention techniques	
20	Identify and list duty-specific problems in a multistory dwelling	
21	Identify all construction documents required in the completed building process	

Connections:

***Common Core State Standards**

***KOSSA**

***Common Core Technical Standards**

***New Generation Science Standards**

***Post-Secondary: KCTCS CAR 126**

CTSO's – Skills USA

Site Layout and Foundations

Class 460214

Lab 460226

	Course Description Students will prepare materials, calculate the cost for a building site, and layout a site with a transit, locating property lines and corners. Students calculate the amount of concrete needed for footing and foundation walls and construct different types of foundations and forms	
	Content/Process	
1	Describe building site layout procedures using a transit.	
2	Calculate the quantity of concrete blocks and common face brick needed for a concrete block wall.	
3	Calculate the amount of concrete needed for footings and foundation walls.	
4	Describe various types of foundation systems.	
5	Discuss basic properties of concrete.	
6	Identify different soil conditions and the effects on footer design.	
7	Explain safety procedures associated with site layout and foundations.	
Connections: *Common Core State Standards *KOSSA *Common Core Technical Standards *New Generation Science Standards *Post-Secondary: KCTCS CAR 140 CTSO's – Skills USA		

INTERNSHIP

460245

	Course Description: Includes various Construction Carpentry Technology topics, issues and trends. Topics may vary semester to semester at the discretion of the instructor; course may be repeated with different topics to a maximum of six credit hours	
	Content/Process	
1	Gain career awareness and the opportunity to test career choice(s)	
2	Receive work experience related to career interests prior to graduation	
3	Integrate classroom studies with work experience	
4	Receive exposure to facilities and equipment unavailable in a classroom setting	
5	Increase employability potential after graduation	
6	Demonstrate a working knowledge of the topic chosen for the class.	

Connections:

***Common Core State Standards**

***KOSSA**

***Common Core Technical Standards**

***New Generation Science Standards**

***Post-Secondary: KCTCS CAR 198**

CTSO's – Skills USA